CLAIMS

What is claimed is:

1. A structure comprising:

a plurality of electrically conducting beam leads in an array on an electronic chip carrier of a TAB package;

said beam leads being electrically and mechanically joined to bonding pedestals or bumps by an electrically conducting adhesive.

2. A structure according to Claim 1, wherein the said conducting beam leads are made of a material selected from the group consisting of copper, Sn-plated surface, Au-plated surface, Au/Ni-plated surface and wherein the said conducting beam leads are supported by an insulating polymer selected from the group consisting of polyimide and polyester.

3. A structure according to Claim 1, wherein the said electrically conducting adhesive comprises:

a thermoplastic or thermoset polymer resin matrix,

no-clean solder flux,

a plurality of electrically conducting particles with an electrically conducting fusible coating with at least some of said particles being fused to other said particles through said electrically conductive fusible coating.

4. A structure according to Claim 3, wherein said electrically conducing particles are formed from at least one material selected from the group consisting of Cu, Au, Ag, Al, Pd and Pt.

5. A structure according to Claim 3, wherein said electrical coating is selected from the group consisting of Sn, Zn, In, Pb, Bi and Sb, and combinations thereof.

6. A structure according to Claim 3, wherein said polymeric material is selected from the group consisting of polyimide, siloxane, polyimide-siloxane, phenoxy polymers, styrene allyl alcohol polymers, epoxies and bio-based polymeric resins derived from at least one member selected from the group consisting of lignin, cellulose, wood oil and crop oil.

7. A structure according to Claim 3, wherein said polymeric material provides adhesive joining of said bonding pedestals or bumps.

8. A structure according to Claim 3, wherein said conducting particles are about 1 to about 50 micrometers in diameter.

9. The structure according to Claim 3, wherein said fusible coating is about 0.1 to about 2 micrometers in thickness.

10. A structure according to Claim 1, wherein said structure is an electronic device.

11. A structure according to Claim 1, wherein said structure is a computing device.

12. A structure according to Claim 1, wherein said structure is an electronic chip carrier of a tape automated bonding (TAB) package.

13. A structure according to Claim 1, wherein the attachment of the said beam leads with the said conducting adhesive is achieved by applying heat and pressure for a duration of time.

14. A structure according to Claim 1, wherein the disposition of the said conducting adhesive is achieved by use of a syringe to the tip area of the said beam leads.

15. A structure according to Claim 1, wherein the disposition of the said conducting adhesive is achieved by use of a syringe, screen or stencil print to the top of the said bonding pedestals or bumps on an integrated circuit device.

16. A structure comprising:

a plurality of electrically conducting bumps in an array on an integrated circuit device for a flip chip interconnection;

said bumps being electrically and mechanically joined to terminal pads on an electronic chip carrier module by an electrically conducting adhesive;

said electrically conducting adhesive being deposited either on the said terminal pads of the said chip carrier module or on the said conducting bumps on the said integrated circuit device.

17. A structure according to Claim 16, wherein the said conducting bumps are made from metals selected from the group consisting of Au, Cu, Ni, Co, Ag, Pd, Pt, Pb, Sn, In, Bi, Sb, Sn, and alloys thereof.

18. A structure according to Claim 16, wherein the said conducting bumps are deposited on the thin film layers selected from the group consisting of Cr/Cu/Au or Ti/Cu/Au and TiW/Cu/Au, and wherein the said thin film layers are deposited on aluminum or copper metallization of an integrated circuit device.

19. A structure according to Claim 16, wherein the said electrically conducting adhesive comprises:

a thermoplastic or thermoset polymer resin matrix,

no-clean solder flux,

a plurality of electrically conducting particles with an electrically conducting fusible coating with at least some of said particles being fused to other said particles through said electrically conductive fusible coating.

20. A structure according to Claim 19, wherein said electrically conducting particles are formed from at least one material selected from the group consisting of Cu, Au, Ag, Al, Pd and Pt.

21. A structure according to Claim 19, wherein said electrical coating is selected from the group consisting of Sn, Zn, In, Pb, Bi and Sb, and combinations thereof.

22. A structure according to Claim 19, wherein said polymeric material is selected from the group consisting of polyimide, siloxane, polyimide-siloxane, phenoxy polymers, styrene allyl alcohol polymers, epoxies and bio-based polymeric resins derived from at least one member selected from the group consisting of lignin, cellulose, wood oil and crop oil.

23. A structure according to Claim 19, wherein said polymeric material provides adhesive joining of said solder bumps.

24. A structure according to Claim 19, wherein said conducting particles are about 1 to about 50 micrometers in diameter.

25. A structure according to Claim 19, wherein said fusible coating layer is about 0.1 to about 2 micrometers in thickness.

26. A structure according to Claim 16, wherein said structure is an electronic device.

27. A structure according to Claim 16, wherein said structure is a computing device.

28. A structure according to Claim 16, wherein said structure is an electronic chip carrier of a flip chip package.

29. A structure according to Claim 16, wherein the attachment of the said solder bumps to the said electronic module with the said conducting adhesive is achieved by the application of heat and pressure for a duration of time.

30. A structure according to Claim 16, wherein the disposition of the said conducting adhesive is achieved to the said terminal pads of an electronic module by use of a syringe or screen print.

31. A structure according to Claim 16, wherein the disposition of the said conducting adhesive is achieved to the top of the said solder bumps on an integrated circuit device by use of a syringe or screen print.

32. A structure comprising:

a plurality of electrically conducting beam leads in an array on an electronic chip carrier of a TAB package used for electrically connecting between an active matrix liquid crystal display (AMLCD) and a printed circuit board;

said beam leads being electrically and mechanically joined to the electrodes on an AMLCD glass plate by means of an electrically conducting adhesive;

said electrically conducting adhesive being deposited either on the said electrode pads of the said glass plate or on the said conducting beam leads of a TAB package.

33. A structure according to Claim 32, wherein the said conducting beam leads are made of a material selected from the group consisting of copper, Sn-plated surface, Au-plated surface, Au/Ni-plated surface and wherein the said conducting beam leads are supported by an insulating polymer selected from the group consisting of polyimide and polyester.

34. A structure according to Claim 32, wherein the said electrically conducting adhesive comprises:

a thermoplastic or thermoset polymer resin matrix,

no-clean solder flux,

a plurality of electrically conducting particles with an electrically conducting fusible coating with at least some of said particles being fused to other said particles through said electrically conductive fusible coating.

35. A structure according to Claim 34, wherein said electrically conducting particles are formed from at least one material selected from the group consisting of Cu, Au, Ag, Al, Pd, Pt, and plastic balls coated with at least one member selected from the group consisting of Ni, Co, Cu, Au, Ag, Pt, Pd and combinations thereof.

36. A structure according to Claim 34, wherein said fusible coating is selected from the group consisting of Sn, Zn, In, Pb, Bi and Sb, and combinations thereof.

37. A structure according to Claim 34 wherein said polymeric material is selected from the group consisting of polyimide, siloxane, polyimide-siloxane, phenoxy polymers, styrene allyl alcohol polymers, epoxies and bio-based polymeric resins derived from the group consisting of at least one member selected from lignin, cellulose, wood oil and crop oil.

38. A structure according to Claim 34, wherein said polymeric material provides adhesive joining of said bonding pedestals or bumps.

39. A structure according to Claim 34, wherein said conducting particles are about 1 to about 50 micrometers in diameter.

40. A structure according to Claim 34, wherein said fusible coating layer is about 0.1 to about 2 micrometers in thickness.

41. A structure according to Claim 32, wherein said structure is an electronic device.

42. A structure according to Claim 32, wherein said structure is a computing device.

43. A structure according to Claim 32, wherein said structure is an electronic chip carrier of a tape automated bonding (TAB) package used for electronic packaging of an active matrix liquid crystal display (AMLCD).

44. A structure according to Claim 32, wherein the attachment of the said beam leads with the said conducting adhesive is achieved by the application of heat and pressure for a duration of time.

45. A structure according to Claim 32, wherein the disposition of the said conducting adhesive is achieved by use of a syringe to the tip area of the said beam leads.

46. A structure according to Claim 32, wherein the disposition of the said conducting adhesive is achieved by use of a syringe, screen or stencil print to the said electrode pads on an AMLCD glass plate.